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THE NATIONAL FUNGUS COLLECTIONS

by

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In recent years the fungus collections of the Smithsonian Institution and the United States Department of Agriculture have been brought together at the Plant Industry Station at Beltsville, Maryland for convenience of reference. The collections, formerly known as the Mycological Collections of the Bureau of Plant Industry and Associated Units, have now been designated as *The National Fungus Collections*. The newly named unit operates as part of the Horticultural Crops Research Branch of the Agricultural Research Service in cooperation with the Department of Botany of the Smithsonian Institution. The collections continue to be housed in the North Building of the Plant Industry Station at Beltsville.

A brief review of the history of these collections and their present status may be in order here.

C. C. Parry, in his first report as botanist to the Commissioner of Agriculture, notes that after entering on his duties in March of 1869 he took over all available herbarium materials from the Smithsonian Institution and that additions during the year included a complete set of the fungi collected by H. W. Ravenel in Texas. There was also purchased from this collector "five volumes of southern fungi", which presumably were part of the latter's published exsiccati.

The Texas fungi had been collected by Ravenel, one of the pioneer American mycologists, while making a study of the flora of that state in connection with investigations of the Texas cattle fever disease for the United States Department of Agriculture. This series, numbering about 315 specimens, was named by M. C. Cooke, a noted British mycologist of the period and, together with the exsiccati mentioned, constituted the beginning of what was to become the mycological collections of the Department of Agriculture.

This excellent beginning, unfortunately, was not followed up, as is found on reading F. Watts' report for 1873 as Commissioner of Agriculture: "An individual in Aiken, South Carolina, well known for his researches in fungi, is possessed of a large and valuable collection of specimens, the results of 30 years' accumulations which he proposes to sell for $ 1000 . . . the opportunity should not be neglected . . ." But it was, and the collection concerned, which again was Ravenel's, went ultimately to the British Museum.

George Vasey who succeeded Parry published an account of the National Herbarium in the Botanical Gazette in 1886 (Vol. 11: 153—156) and noted briefly that the mycological collection in addition to the Ravenel material contained specimens from J. B. Ellis, G. W. Clinton, B. D. Halsted, E. W. D. Holway, W. A. Kellerman, T. J. Burrill, and A. B. Langlois, all noted mycologists of the period. He adds that

the Collections were housed in one room of the Agricultural Building under the care of Prof. F. Lamson Scribner, the assistant botanist.

Scribner had joined Vasey's Division of Botany in 1885 to study fungus diseases of plants and the work speedily assumed such importance that it was set-up as the Section of Vegetable Pathology in 1886. In his report as Chief of the Section for 1887, Scribner reports an herbarium consisting of 9300 labelled fungus specimens mounted on 5572 sheets. He adds that, "permanent mounts of microscopical preparations to the number of about 500 were made during the year." A collection of European fungi of the vine was presented also by Prof. P. Viala and a series of specimens deposited by W. W. Calkins and S. M. Tracy collected in Florida and certain Western States.

In the following year B. T. Galloway, Scribner's successor, writes that, "During the year many new and valuable additions have been made to the herbarium and the number of microscopic mounts of fungi also materially increased."

As recorded in his report for 1891 the fungus herbarium had reached a total of 16,397 specimens mounted on 7865 sheets, representing 779 genera and 6424 species, including the more important exsiccati. By this time, as he notes, "general care of the herbarium requires the work of one assistant, while indexing, filing, and general supervision of the literature consumes a considerable part of the time of another." In this report too, mention is first made of the herbarium catalogue of hosts and fungi, an unique feature of the National Fungus Collections.

In Galloway's succeeding annual reports, mention of the herbarium is brief and of a general nature, but it was evident that activities outlined in 1891 were continued with direct interest at all times on the part of the Chief of the Division and his staff in building up the collections. By 1895 a crisis was reached, which Galloway, writing in later years (Phytopath. 18: 877. 1928.), described as follows: "The glamor of field service in phytopathology was irresistible so that our collections and herbaria were beginning to languish and our mycological technique becoming rusty. To meet the situation we tried various expedients and made numerous experiments. It was the conviction of my colleagues that our only hope was to find a man, rich in experience and so wedded to mycology that nothing could swerve him from the beaten path. The experiment was made, but the man failed us."

In this extremity, Mrs. Flora W. Patterson was placed in charge of the fungus herbarium with the title of Assistant Pathologist, later changed to Mycologist at the time of the formation of the Bureau of Plant Industry in 1901, and for more than twenty-eight years devoted herself unceasingly to the upbuilding of the collections. Following Mrs. Patterson's retirement in April, 1923, the Office of Mycological Collections was combined with the Plant Disease Survey, under the general direction of C. L. Shear, and J. R. Weir was transferred from work in forest pathology to become Mycologist in Charge of the mycological unit. He in turn was succeeded by the writer in 1927.

The Collections were originally housed in the famous old red brick building on the Mall which sheltered all of the activities of the Department of Agriculture in Washington for many years after its erection in 1867. Here the fungi gained that early and rigid training in space conservation, which has stood them in good stead ever since, for space was always at a premium in that historic but extremely limited edifice. Crowded out finally the collections were housed for some years in a small and still more gloomy and dilapidated structure fronting on old B St. S. W., now Independence Ave., where part of the South Building stands at present. There followed a period of relative affluence of some twenty-five years when gradually increasing amounts of space were allotted the herbarium in the marble building known as the "West Wing", now part of the administration building of the Department

of Agriculture. Finally with the advent of World War II, the unit together with other Divisions of the then Bureau of Plant Industry was moved to the Plant Industry Station at Beltsville, Maryland, where it was given space in the North Building.

The Department of Agriculture portion of the Collections now consists of a general fungus herbarium, a series of special collections, supporting indexes, a microscopic slide collection, photograph and literature collections, historical reference materials, and other pertinent records.

In the general herbarium there has been deposited through the years much of the mycological and phytopathological material used in their work by the mycologists and pathologists of the former Bureau of Plant Industry and its predecessor, the Division of Vegetable Physiology and Pathology. Among those whose fungus collections, to a greater or less extent, will be found here are W. A. Archer, R. Kent Beattie, M. A. Carleton, Vera K. Charles, P. H. Dorsett, J. C. Dunegan, David Fairchild, F. D. Fromme, B. T. Galloway, Geo. G. Hedgcock, A. E. Jenkins, A. G. Johnson, W. A. Orton, F. W. Patterson, F. Lamson Scribner, C. L. Shear, Erwin F. Smith, N. E. Stevens, Wm. Stuart, W. T. Swingle, M. B. Waite, H. J. Webber, and J. R. Weir, as well as many other past and present Department workers including present staff members of the National Fungus Collections.

Many important series of specimens have been received from outside sources by exchange, purchase or donation, among which may be noted those of J. P. Anderson, Alaska; E. Bethel, Colorado and other Western States; W. W. Calkins, Florida; G. W. Carver, Alabama; F. D. Heald and F. A. Wolf, Texas; A. A. Heller, California and Puerto Rico; E. W. D. Holway, Iowa and South America; W. A. Kellerman, West Virginia and Guatemala; A. B. Langlois, Louisiana; J. Lind, Denmark; E. D. Merrill and O. A. Reinking, Philippine Islands; L. W. Nuttall, West Virginia; H. E. Parks, California; A. B. Seymour, Illinois and Massachusetts; R. Sprague, Oregon and North Dakota; P. C. Standley, Central America; F. L. Stevens, Puerto Rico, British Guiana, Ecuador, Panama, Hawaii, and Philippine Islands; J. A. Stevenson, Puerto Rico; B. C. Tharp, Texas; S. M. Tracy and F. S. Earle, Mississippi; F. H. Wellman, Central America; fungi of the Wilkes' Expedition; fungi of the North Pacific Exploring Expedition.

Dr Thomas Taylor, the first microscopist of the Department, through his interest in mushrooms and plant diseases accumulated some mycological material during his regime (1871—1896) as Chief of the Division of Microscopy. This material came to the Division of Vegetable Pathology when his connection with the Department was severed in 1896, although many of the records of his Division, including a series of several hundred water color drawings of fungi by M. C. Cooke, were not recovered until many years later.

For some years all published exsiccati received, both old and new, have been kept in the original volumes as issued or, if not so issued, in bound volumes, with the specimens arranged in numerical order. Such specimens now total over 82,000 and have been indexed for ease of reference.

The fungus herbarium of Ezra Michener is one of the prized possessions of the National Collections. The 38 volumes making up this collection were unearthed by C. L. Shear and Neil E. Stevens in 1917 in a Pennsylvania library, where they had reposed for many years. Michener will be remembered as the amateur botanist who was given the privilege of working over the Schweinitz herbarium and of removing portions of each specimen for incorporation into his own herbarium. It also contains many specimens collected by M. A. Curtis, another of the outstanding early American mycologists.

The late George L. Zundel of Pennsylvania State College specialized over many

years in the study of the smut fungi (Ustilaginales), a group producing many serious diseases of the cereals and other economic crops. His extensive materials in this group including specimens, photographs and other records were acquired in 1948 and are kept as one of the separate units of the Collections.

Carlos E. Chardon of Puerto Rico has given detailed attention for many years to the tar spot fungi (Dothideales) with particular reference to the West Indies and Central and South America. In 1950 he deposited his extensive fungus herbarium with the National Collections, where it is maintained as one of the noteworthy separate herbaria.

In addition to the units just discussed the following are important items of the Collections which are curated separately from the general herbarium: (1) The C. C. Plitt lichen herbarium; (2) the Chinese herbarium consisting of that portion of the Chinese national fungus collections originally at Nanking, not destroyed by the Jananese; (3) entomogenous fungi; (4) the E. E. Morse collection of Pacific Coast fungi; (5) sugar-cane fungi; (6) rubber plant fungi; (7) a series of fungi and pathological specimens preserved in liquid.

A representative collection of the forest tree fungi, particularly the wood rotting species and parasitic leaf forms such as the rusts, has been brought together in the course of the work of the former Division of Forest Pathology, now the Division of Forest Disease Research, Forest Service. These collections, numbering over 25,000 specimens, are curated as a separate unit in space adjoining The National Fungus Collections at Beltsville.

The Smithsonian portion of the Collections consists of three distinct units. A general series includes all fungus material accumulated in the U. S. National Herbarium, incident to work with other plant groups, since 1893 when the phanerogamic herbarium was returned to the Smithsonian Institution during the curatorship of F. V. Coville.

The W. H. Long fungus herbarium was received by the Smithsonian by bequest following Dr Long's death in 1947, at Albuquerque, New Mexico, where he had long been a forest pathologist with the Bureau of Plant Industry. It consists primarily of his extensive collections of Gasteromycetes and Uredinales from the southwestern states. Types of the many new species set up by him in these groups are included.

The largest and most important unit of the Smithsonian series is that known as the C. G. Lloyd Mycological Collections. This series of nearly 60,000 specimens represents the life work of the late C. G. Lloyd of Cincinnati and includes an excellent representation of the larger fungi of the world. It is particularly noteworthy for the Polyporaceae, Gasteromycetes and Xylariaceae contained in it. The Lloyd Collections were obtained in 1928 by gift from the Trustees of the Lloyd Library and Museum, and were deposited at that time with the Bureau of Plant Industry under a cooperative agreement with the Smithsonian Institution. The specimens have been catalogued in accordance with Smithsonian practice and completely indexed. In addition to the actual specimens, and the catalogue and indexes, these collections include Mr Lloyd's notebooks compiled in European mycological herbaria, over 10,000 negatives with subject index, a set of his mycological writings both as published and as rearranged systematically in loose-leaf form, a series of microscopic slides prepared from types and other rarities studied abroad by Mr. Lloyd, and a portion of his mycological correspondence.

All herbarium units, except the exsiccati and Michener series which are in bound volumes, and of course the specimens in liquid, are curated according to a uniform plan, such as is followed in most present day herbaria. Insofar as practicable, all specimens are packeted and then labelled and fastened to standard size herbarium sheets ($11\frac{1}{2} \times 16\frac{1}{2}$ inches). Each sheet is labelled in the lower right corner

with the name of the fungus mounted thereon, as well as with that of the host if this be known. Where a fungus occurs on more than one host, as is often the case, a separate sheet is used for each host. Fungus species are filed alphabetically in genus covers.

Bulky or delicate specimens are placed in covered boxes, the cover bearing the label, and then in turn placed in trays which are of three depths, 1½, 2½ and 5 inches. The boxes themselves are in four sizes, 4, 8, 16, or 32 to a tray, and are interchangeable to permit complete economy of space. Each fungus genus is assigned a number, the original plan being that published anonymously by W. A. Kellerman in an unnumbered bulletin of the Kansas Agricultural Experiment Station in 1890.

For many years an alphabetical fungus index has been maintained to facilitate reference to the general herbarium, the various exsiccati series, and the several special collections. This is supplemented by a host index. A third index, which has also been in progress over a long period of time and has reached substantial proportions, cites the place, date and author of new fungus genera and species, including new combinations. This is especially helpful in work on the nomenclature and taxonomy of the fungi. A geographical index to fungi in the general herbarium from all South and Central American countries, Mexico, and the District of Columbia area is under way. Since 1927, the mycological and plant pathological literature of the world has been indexed insofar as time has permitted. Although necessarily far short of complete coverage this index does afford on the basis of data already included in it an excellent cross section of published information in this field.

Included in the "working tools" of the herbaria is an extensive reprint collection of mycological and phytopathological papers (about 35,000 items) and practically all mycological periodicals and books. Many of these are on deposit from the United States Department of Agriculture Library. The reprint collection and a reference collection of mycological books are part of the Smithsonian portion of the Collections.

A fungus exchange service has long been one of the features of the herbarium and has proved highly successful as a means of obtaining new material for the national Collections. Duplicate material is made up into properly labelled packets and placed in stock. Mimeographed lists of specimens available for exchange are prepared from time to time as a basis of such operations.

The National Fungus Collections rank second in size in the United States according to figures prepared by Dr F. J. Seaver, formerly Curator of Fungi of the New York Botanical Garden, the Farlow Cryptogamic Herbarium of Harvard University taking first place. The combined fungus materials of the two Institutions making up the National Collections total more than 550,000 specimens, not including great quantities of specimens awaiting study and naming.

THE "ORIGINAL SPELLING" OF BOTANICAL NAMES

by

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Article 82 of the *International code of botanical nomenclature* provides that the original spelling of a name be retained. It is permissible to correct typographic and orthographic errors; but, as has often been shown, these are rare, and apparent errors should be treated with caution. Attempts have been made from time to time to admit other exceptions to the rule; but it still stands unencumbered, a sound prop to the stability of names.

There is, however, one point for which no provision has thus far been made. Orthography depends on the use of typographic symbols; some of these have been differently used in different periods. Certain letters which we now regard as distinct were, in other times treated as equivalent. To continue the usage of an earlier period in this respect sometimes leads to difficulties, even to absurdities; the concept of „original spelling" must be modified accordingly.

The generic name which we write *Euonymus* was originally published as *Evonymus*. If we reinstate the "original spelling," shall we also write *Evterpe* for *Euterpe*, or such an unpronounceable monstrosity as *Cvrcvligo* for *Curculigo*? If we insist on *Najas* because this spelling appears in its first valid publication, must we also accept *Guajacum* and *Iungia* for the same reason?

In classical Latin the capital letter "V" did duty for two sounds, the vowel which we know as "U" and the nearly related consonant which was apparently pronounced as "W" is pronounced in English. The letter "U" for the vowel was introduced later; but the early printers continued to use "V" for both. Even though the sound of this consonant changed as modern languages developed, the two characters continued for some time to be used interchangeably, without regard to pronunciation. Gerard, for instance, writes, "It would be tedious to vse by way of introduction, any curious discourse vpon the generall diuision of plants." (Even the sounds of the letters were interchanged in some dialects, as every reader of "Pickwick" knows.) The use of "V" for both letters was continued through the eighteenth century, particularly in capitals; but printing was not consistent in this respect. Gaertner has ALOPECURUS and LAGVRVS on adjacent pages. His EVTERPE became *Euterpe* when written in small letters and combined with a specific epithet. Obviously when we adopt such names we should make them conform to the modern use of these two characters, writing "U" where the vowel is intended and "V" for the consonant. The first syllable of such names as *Euonymus*, *Euterpe* is the Greek *εὖ*, seen also in such modern words as "eugenics", "eulogy", etc.; and the correction of the original printing is warranted *) In CVRCVLIGO, BRVNNICHIA, THRICHOPVS there is no question that a vowel is required; to insist on the use of the names as printed above would be ridiculous.

The letter "I" has undergone similar vicissitudes. The younger Linnaeus published the name IUNGIA, "in memoriam Joachimi Jungii, Lubecensis...." In changing the initial "J" to "I" he was adhering to classical usage, wherein "I" did duty for the consonant of *iam*, *iudex*, *Iuppiter* (approximating in sound the English "Y") as well as for the vowel in *filius*, *ignis*. In the development of modern languages the consonantal "I" underwent various changes in sound. In Italian we find it in the initial sound of such words as *già*, *giudice*. A similar pronunciation entered English from the continent, giving us the initial sound in "judge", "Jupiter."

The letter "J" was introduced merely as a variant of "I", to make it more distinct. In early printing, one finds it especially when "i" is doubled, as in *filij* (for *filii*) and in such numerals as vij. A slightly different use is seen in Linnaeus' latinization of Ray to Raius, the genitive of which he wrote "Raji" (often abbreviated "Raj."). These variations in typography did not correspond to any differences in sound. It was only gradually that the "J" came to be used for the consonantal sound and the "I" reserved for the vowel. During the eighteenth century usage in this respect was far from uniform in Europe. In the *Species plantarum*, as in most works of the period, the "I's" and "J's" were treated as one letter in the index. Indeed in modern German, in which the old consonantal sound is still present, one capital sign serves for both vowel and consonant.

*) We must disregard the analogy of "evangelist," in which the use of the "v" led to a change in pronunciation, now fixed by use.

At the time of Linnaeus, then, the two letters "I" and "J" were used interchangeably, and in different ways by different printers, without reference to pronunciation. Apparently there was as little system in their use as in the treatment of "U" and "V", even within the covers of one volume. In the *Supplementum* of Linnaeus filius we find *Justicia* on p. 84 but *Iusticia* in the index. *Castilleja* appears on p. 47; *Castilleia* on pp. 75, 293, 458. To label such variants "typographic or orthographic errors" would only complicate matters; for how could we determine which was the correct style of printing in a time when both were permissible? Modern practice, however, demands a less capricious use of characters. If we are at all concerned over fixity of spelling, then the same sign must always be used in the same way. If we are to sanction the use of "J" in botanical Latin, it must be in accord with some rule or principle. The principle which suggests itself is analogous to that proposed for the treatment of "U" and "V": that, as in modern languages, "J" be used for the consonant, "I" for the vowel, no matter how these characters were employed by printers of another century. *Jungia* obviously begins with a consonant, whether this be pronounced as in classical Latin or in a modern language.

The name which Linnaeus' printer Laurentius Salvius printed as NAJAS was derived from the Greek *νάϊας*, meaning a waternymph. This is a word of three syllables, the iota being an indubitable vowel. This was true also of the Latin equivalent. The English "naiad" has only two syllables, the "i" having become joined to the "a" to form a diphthong; it is still a vowel. The correct spelling of the generic name is therefore *Naias*. It is strange to see under the heading *Najas* in recent works the Greek word correctly transliterated as Naias.

The proper treatment of words ending in -eja is debatable. Gaertner's APULEJA presumably commemorates the herbalist Apuleius ("Pseudo-Apuleius"), who probably lived in the fourth century and wrote in Latin. The "i" in his name had a consonantal value, and to write the name Apulejus seems justified. It is scarcely ever so written, however, perhaps because modern usage, as in the preceding example, tends to unite the "i" with the preceding vowel in a diphthong. Gaertner's name has been almost always written *Apuleia*. (Martius also named a genus APULEJA; it also has been generally spelled *Apuleia*, and is conserved in that form over *Apuleia* Gaertn.) Other names of the same type are *Buddleja, Castilleja, Satureja. Castilleja* is particularly instructive. The name was given "in memoriam Castilleji, botanici gadensis." Perhaps because it was derived directly from a modern word, the consonantal "j" has been generally retained; *Satureja*, taken directly from the Latin, has been generally spelled with an "i." But Domingo Castillejo would presumably have latinized his name as Castilleius (for "Castilleji" in the above quotation compare "Raji"). The same remarks apply to this name as to Apuleius, and surely all such names should be treated in the same way. In my opinion, it is more in accord with modern usage to write them all with -eia; this certainly agrees better with modern pronunciation.

GUAJACUM was taken by Linnaeus from Plumier's GUAIACUM, which he derived from the vernacular name "Guaiac." The generic name has almost always been spelled as Plumier spelled it; and there is no evidence that the original "I" was intended for a consonant. (In a few places Linnaeus wrote *Gvajacum*.) The Greek word from which LEUCOJUM is derived is *λευκόϊον;* as in *νάϊας* the iota is a distinct syllable, a vowel. Modern usage suggests the spelling *Leucoium;* compare *iodanthus*, which we should not think of writing *jodanthus*. RAJANIA was named for John Ray. The English terminal "y" is derived from the vowel "i"; Ray's name is correctly latinized Raius, and the genus is properly written *Raiania* — prevailing usage to the contrary.

SERIANIA was named by Plumier for "Reverendus Pater Philippus Sergeant

Caletanus." He spelled it *Serjania* in small letters, which version has been generally — and correctly — adopted. The name is evidently a deliberate latinization of the French priest's name, the "j" standing for the "g" and clearly intended as a consonant. SAURAUJA was named by Willdenow for Franz von Saurau. The termination is certainly nothing but the usual Latin -ia with which so many personal names have been converted to botanical use. There is no more reason to retain the "J" of the original publication than there would be to write Magnolja, Mutisja, or Zizja.

There are many more such names; the above examples will serve to illustrate the problems involved and the principles by which they may be solved. In order to legalize these principles, I propose that the Editorial Committee of the *Code* be empowered to draft a note to be added to Art. 82, to the effect that in maintaining the original spelling of names, "J" and "V" must be changed to "I" and "U" respectively when they represent vowels, while the reverse changes must be made when consonants are required.

LEGUMINALES: A NEW ORDINAL NAME

by

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Because of the necessity of using this name in a book now nearing completion, and of the undesirability of publishing any new names therein, it is expedient to record this taxon and to define its meaning. The legumes, as is well known, constitute one of the largest taxa of plants and one of the greatest economic importance, with more than 12,000 species in about 600 genera of world wide distribution, although the majority are tropical. Largely on a traditional basis, they have been usually treated as a family, especially in manuals and floras dealing with the plants of limited areas in the temperate regions, although some botanists (Small, 1903; Britton & Brown, 1913) have recognized four families.

The theory that these plants collectively constitute a taxon of rank higher than a family is not new, for although treated as one family by Lindley (1853), Bentham & Hooker (1865), Taubert (1891—1894), and by most subsequent botanists, this taxon had been recognized as of ordinal rank as early as 1814, when Robert Brown observed that "This extensive tribe i.e., Leguminosae may be considered as a class [i.e., order] divisible into at least three orders [i.e., families], to which proper names should be given." He proceeded to describe Mimosae, Lomentaceae or Caesalpineae, and Papilionaceae. This interpretation that leguminous plants constitute a taxon of ordinal rank was followed by, *inter alios*, Warming (1879), Hutchinson (1926), and by Metcalfe & Chalk (1950), who continued, however, to apply the name Leguminosae, which had previously been used for one of the component families, the Papilionaceae. To avoid this duplication of names the following proposal is made:

Leguminales nom. nov. This name is proposed for the order of leguminous plants, to be distinguished from Rosales as follows: Carpel one, developing into a legume (rarely indehiscent); flowers of most species zygomorphic; stamens usually definite, 10 or 5, sometimes numerous.

Hoc nomine ordinem plantarum leguminosarum appellare proponitur, quae sic a Rosalibus distinguantur: Carpello uno in legumen (raro indehiscens) evolvente,

floribus plurium specierum zygomorphicia, staminibus plerumque definitis 10 sive 5, interdum numerosis.*)

The order is closely allied to Rosales, with which it agrees in the alternate leaves, the presence of stipules, the generally pentamerous and most frequently perigynous flowers, and in the absence of endosperm from the seeds. It includes the four families, Mimosaceae, Caesalpiniaceae, Krameriaceae, and Papilionaceae.

One of the principal diagnostic floral characters of this order is the unilocular pistil formed from a single carpel and which bears the ovules in one or two rows on its ventral suture. This pistil develops into a legume dehiscing along both the ventral and dorsal sutures. The fruits are rarely indehiscent. It seems probable that Leguminales are of polycarpellate ancestry, showing increasing floral zygomorphy, and are probably derived from Rosales through Mimosaceae. That they are evidently related to Rosales is shown by the usually stipulate leaves, typically pentamerous and chiefly perigynous flowers with cyclic arrangement of stamens, and in the absence of endosperm. They are evidently connected with Rosales through Prunoideae and Chrysobalanoideae which are also unicarpellate. An apparently constant character separating Rosales from Leguminales is found in the calyx. In Rosaceae the odd calyx-lobe is superior, i.e., next to the axis of the inflorescence, while that of Leguminales is inferior, i.e., next to the bract, or, in other words, the unpaired sepal is median and anterior. Hutchinson characterizes the Leguminales as a prolific and highly successful group derived from Rosales through Mimosaceae and Caesalpiniaceae and ending in the very natural family Papilionaceae.

On this view, the order Rosales has a somewhat narrower interpretation than that employed by e.g., Engler, whose suborders Podostemonineae (Podostemonaceae, etc.), Saxifragineae (Crassulaceae, Saxifragaceae, Pittosporaceae, Hamamelidaceae), characterized by syncarpy and prevalent endospermy, are better placed as suborders of Hamamelidales (Wettstein, 1901). Engler's third suborder, Rosineae, in which he included Platanaceae, Rosaceae, and Leguminosae, seems to be more satisfactorily modified to include the four families Rosaceae (retained as one family comprising six subfamilies), Crossosomataceae, Connaraceae, and Calycanthaceae, with Platanaceae transferred to Hamamelidales, and Leguminosae treated as a separate order, Leguminales.

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*) Latin written by Professor J. L. Heller, Head of the Department of Classics, University of Illinois.

THE SYMBIOTIC FUNGI OF LICHENS AND THEIR NOMENCLATURE

by

R. Ciferri and R. Tomaselli (Pavia)

At the Eighth International Botanical Congress, 1954, we [1]) presented a proposal for the modification of the Art. 76 of the International Code of Botanical Nomenclature under which, "For nomenclatural purposes names given to Lichens shall be considered as applying to their fungal components..." Our proposal aroused opposition, and as we feel that our basic difficulty has not been fully appreciated, we should like to take this opportunity to restate our case; we will do this as clearly and objectively as possible.

Lichens have been recognized for several hundred years as distinct species, and they were given latin binomial names by Linnaeus and later workers in the belief that a lichen was a single organism just like a fungus or an alga. These binomials continued to be applied to Lichens after it had been proved that Lichens were compound beings and, therefore, subject to Art. 76 of the Code, under which "A name of a taxon must be rejected if its characters were derived from two or more entirely discordant elements, unless it is possible to select one of these elements as a satisfactory type".

It has since long been generally accepted that, in some respects at least, the fungus plays a dominant part in the fungus-alga association, which forms the lichen and it has since long been customary to delimit classes and orders of Lichens mainly on fungal characters (e.g. Ascolichenes, Basidiolichenes, Pyrenocarpales). This practice, and the implication that different species of Fungi must be present in different lichen species, or eventually, that the lichen Fungi are incapable of independent existence, has led to a ruling under the Code (Art. 76) that "For nomenclatural purposes names given to Lichens shall be considered as applying to their fungal components", but that these names shall take precedence from 1753, and not from 1801 or other starting points for the nomenclature of Fungi. On the other hand, any alga obtained from a lichen is dealt with, both from the standpoints of taxonomy and nomenclature, according to the taxonomic criteria and nomenclatural procedures applied to Algae.

Our own studies of Lichen Fungi [2]), both in culture and in the Lichens themselves, have convinced us that Lichens belonging to distinct genera may contain Fungi so similar that any mycologist will regard them as conspecific, and that different species of one Lichen genus may contain Fungi which are so different that, as Fungi, they are to be referred to different genera. For example, morphologically similar Fungi have been observed in the Lichens *Xantoria parietina* (L.) Th. Fr. and *Caloplaca murorum* (Hoffm.) Th. Fr., while morphologically very dissimilar Fungi have been observed in the three species of *Leptorhaphys: L. tremulae* Mass. (1855), *L. oxyspora* Nyl. (1855) and *L. maggiana* Mass. (1865).

If an attempt is made to apply Art. 76 to the first case, the legitimate name for the fungus from *Xanthoria parietina* and *Caloplaca murorum* would appear to be

1) Ciferri R. and Tomaselli R. (1953) - *The taxonomy and nomenclature of the fungal symbionts of Lichens,* Taxon 2 (8) : 194—196.

2) Ciferri R. and Tomaselli R. (1953) - *Saggio di una sistematica micolichenologica,* Atti Ist. Bot. e Lab. Critt., Univ. Pavia, serie 5. 10 (1) : 22—84.

Ciferri R. and Tomaselli R. (1954) - *Specierum Fungorum qui in Lichenibus insunt descriptiones,* Atti Ist. Bot. e Lab. Critt. Univ. Pavia, serie 5. 10 (2) : 253—295.

Xanthoria (gen.), which is the earliest one[3]) as from a mycological point of view *Xanthoria* and *Caloplaca* are names for the same genus of Fungi (i.e. *Caloplaca* is a taxonomic or "facultative" synonym of *Xanthoria*). That the fungus from the lichen *Caloplaca* should be called *Xanthoria*, although at first somewhat confusing, is, of course, no valid argument against this procedure.

In the second case the situation is rather more complicated. In our opinion the Fungi present in *Leptorhaphys tremulae*, *L. oxyspora* and *L. maggiana* are so different that mycologists should refer them to three different genera.

Under Art. 76 the name *Leptorhaphys* should be reserved for *Leptorhaphys tremulae*. What should be done with the two other ones?

If there is among the Fungi no appropriate generic name available, a new generic name must be coined, but the Code does not appear to envisage the possibility of a lichen fungus having a name which is not applicable to a lichen genus. In this particular instance we are well satisfied that the three species of Leptorhaphys are appropriately classified in one genus, and we have no wish to split this genus and to disturb the Lichen taxonomy. Our position is merely the very usual one that we hold views on the taxonomy of certain organisms (in this case certain Lichen Fungi) which are not reflected in the current nomenclature. We wish, therefore, to select more appropriate names. If we were dealing with Fungi from any other source but Lichens, the choice of new names would be a simple procedure. As it is, our choice seems to be restricted by provisions of the current Code.

Taxonomy takes precedence over nomenclature, and it will be clear that for any group of living organisms there may be *more than one* taxonomy. The first use of taxonomic systems is, and must remain, to enable *convenient cataloguing* of the organisms, so that an unknown organism can be identified with the maximum ease and efficiency. Part of these taxonomies, though convenient and necessary, may be quite arbitrary and "artificial" in contrast to a second type of taxonomic systems in which the classification is meant to express the *phylogenetic relationship* of the organisms under consideration. There is no reason to suppose that this second type of taxonomy, whose development is considered by many to be the real objective of taxonomic research, will always yield the most convenient system for ordinary identifications of plants, including Fungi.

Up to now, one of the taxonomic criteria for differentiating Lichens has been based on characters of the fungal-algal association as a whole, supplemented by characteristics of the two components. This has worked well, and though there is as yet no universal agreement among lichenologists on the details of Lichen taxonomy, it may be said that on the whole a convenient and workable system has been elaborated. We have no wish to change the traditional method, and hold the view that Lichens deserve to be classified as Lichens, even though the resulting taxonomy may be, in part, artificial. To supplement this basic taxonomy, lichenologists will, and must, devise experimental taxonomies which finally may result in a possibly very complex system accurately reflecting phylogenetic relations. In the elaboration of such an ultimate system the detailed characteristics of both the fungal and algal components, when accepted as Fungi and Algae, must surely play a part.

When isolated, the algal components of Lichens are, under the present Code, treated for nomenclatural purposes as other Algae. Algologists who might hold differing views on the taxonomy of a particular alga from a lichen would, therefore, have no difficulty in choosing a name to express their individual opinion. We are of opinion that it is essential that Lichen Fungi should receive similar treatment

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3) Both genus and species were described in 1871. We are now studying these Fungi in more detail in culture together with other species from Lichens.

under the Code. Our main reason for this opinion has already been stated. We hold taxonomic views on certain Lichen Fungi, views which may be mistaken but which, at any rate, are the result of taxonomic study; these views we cannot express in the nomenclature of these Fungi without proposing new names[2]), but these names would not strictly be legitimate under the prevailing Code.

A second, more speculative but certainly pertinent, argument for the treatment of Lichen Fungi as Fungi is that many can be grown readily in artificial culture. They do not, in our experience, develop their perfect state no matter whether they are separated from the appropriate alga or left in the latter's company, and this may perhaps be impossible but these imperfect Fungi do not appear to show any marked nutritional specialisation. They grow saprophytically on the ordinary mycological culture media, and it is possible that they also occur as saprophytes in nature. If so, and if found by a mycologist, they will be described as Fungi and given appropriate names; indeed, some Fungi capable of playing a part in Lichen formation may already have been described unsuspectingly by mycologists during the past 150 years. A mycological group with somewhat similar features is that of the Dermatophytes. These Fungi, although extensively cultured, were until very recently only known in nature in the parasitic state. It is now known that Dermatophytes or Dermatophyte-like Fungi are not uncommon in the soil. Some of the soil Fungi are apparently non-pathogenic, but that will present no difficulty, should it in future seem advisable to group pathogenic and non-pathogenic Fungi in the same taxa.

A nomenclatural parallel, but rather less complex, is shown by the treatment the names of "perfect" and "imperfect" states receive under the Code. The name of the perfect state takes precedence, and for some years it was illegitimate to use the name of an imperfect state for a fungus of which a perfect state was known, but this procedure was unacceptable to students of imperfect Fungi, and in 1950 the Article (the present Art. 69) was modified so that the ruling "shall not be construed as preventing the use of names of imperfect states in works referring to such states".

From such considerations as these we deprecate the application of names originally given to Lichens to their fungal or their algal components. The Lichen itself as well as the algal, and the fungal component deserve separate taxonomic treatment. If this view be accepted, one possible solution would be to delete the second paragraph of Art. 76, and to modify the first as "A name of a taxon (*taxa of Lichens excepted*) must be rejected if its characters were derived from two or more entirely discordant elements unless it is possible to select one of these elements as a satisfactory type" and to add a note: "For nomenclatural purposes the fungal and algal components of Lichens shall, in works referring to such components, be treated according to the provisions of the Code which respectively apply to Fungi and Algae".

INTERNATIONAL COMMITTEE ON HORTICULTURAL NOMENCLATURE AND REGISTRATION*)

The Committee held two meetings during the Fourteenth International Horticultural Congress held at Scheveningen; on Sunday, 28 August, and on Friday 2 September. At the first meeting 19 members of the Committee and 20 observers were present, and at the second meeting 17 members of the Committee and 20 observers.

The discussions of the Committee fell under the following five main headings:

*) This Committee, established by the International Horticultural Congress, has among its members all members of the Committee for Cultivated Plants of the International Botanical Congress (see Taxon 3: 191. 1954).

A. The application of the International Code to Agriculture and Forestry.
B. Emendations and additions to the International Code.
C. The establishment of International Registration Authorities.
D. Trade-marks and Patents.
E. Membership of the Committee.

A. The Application of the International Code to Agriculture and Forestry.

1. The present International Code for the Nomenclature of Cultivated Plants was drawn up by the International Committee on Horticultural Nomenclature and Registration, and, in its present form, is applicable primarily to Horticultural plants. As is indicated, however, by the title, the Committee hoped that the Code would also prove useful for agricultural and sylvicultural plants. During the last three years it has become increasingly clear that agriculturists and foresters are anxious to adopt the Code and to co-operate with horticulturists in the naming of cultivated plants. It is equally clear, however, that the present text of the Code will require modification in certain articles, and possibly the addition of special appendices, if it is to be equally applicable to agricultural, horticultural and sylvicultural plants.

2. In view of this, the Committee held a meeting in London in March, 1955, to which were invited representatives of agriculture and forestry, in order to discuss the most satisfactory method of making the Code serviceable for all three types of plant.

3. As a result of this London meeting, and of further discussions by the Committee during the present Congress, the Committee has agreed the following points for recommendation to the International Committee for Horticultural Congresses.

(a) Owing to the considerable overlap between the plants grown by agriculturists, horticulturists and foresters, it is highly desirable to have a single International Code of Nomenclature applicable to all three types of plant.

(b) The present Code, appropriately modified, could form a suitable Code for such a purpose.

(c) If a single Code is adopted, it is essential that the body responsible for considering its provisions should have adequate representation on it of agriculturists, horticulturists and foresters.

(d) A suitable body for this purpose already exists, namely the "International Commission for the Nomenclature of Cultivated Plants", set up in 1948 by the Botanical Section of the International Union of Biological Sciences. Although this Commission has never met, and has no members except a Chairman, Dr R. de Vilmorin, it is understood that the I.U.B.S. would be glad for the Commission to undertake this work.

(e) If the Commission is to function satisfactorily it must clearly not be too unwieldy in size, and it would seem that there should not be more than 24 members in all, representing agriculture, horticulture and forestry.

(f) The horticultural members should be as representative as possible of the different branches of horticulture concerned with nomenclature and also, if possible, should be drawn from a wide range of countries.

(g) The most satisfactory method of choosing the horticultural representatives would seem to be for the Congress to nominate them from among the members of the present Committee, and accordingly the Committee recommends that the following members, with power to co-opt and to fill casual vacancies, should be nominated to represent horticulture on the Commission: Dr R. de Vilmorin (Chairman), Dr B. K. Boom, Dr H. R. Fletcher, Mr J. S. L. Gilmour, Dr N. Hylander, Dr G. H. M. Lawrence, Prof. R. Maatsch, Mr J. M. S. Potter, and Prof. A. Thorsrud.

(h) If the Congress agrees to the above recommendations it is suggested that the procedure during the interval before the next Congress should be as follows:

(I) The Congress should approach the I.U.B.S. suggesting that the Commission should function in the manner outlined above, and that, as a first step, the I.U.B.S. should invite representatives of the Horticultural Congress, of F.A.O. (representing agriculture), and of the International Union of Forestry Research Organizations, to a meeting as soon as possible to discuss with representatives of the I.U.B.S. the detailed organization of the Commission.

(II) Following these discussions, the Commission should meet to consider the text of the present Code and to make recommendations for modifications and additions to render it equally applicable to agricultural,

horticultural and sylvicultural plants. During its deliberations the Commission would consult with the members of the full Committee by correspondence.

(III) The revised text, after publication and wide circulation as a provisional document, should be submitted for the approval of the full International Committee on Horticultural Nomenclature and Registration at the next Horticultural Congress.

B. Emendations and Additions to the International Code.

1. At the meeting of the Committee held in London in March, 1955, a number of proposals for emendations and additions to the Code were discussed, and agreement was reached on their acceptance or rejection. Since March, a few additional proposals have been received.

2. During their meetings at the present Congress, the Committee considered some of the more important emendations and additions accepted in March, and also the proposals received subsequently. They agreed that, with the exception of two emendments, all the points should be referred to the Commission of the International Union of Biological Sciences on which agriculture, horticulture and forestry will all be represented (see Section A, para. (d) above.). The Committee felt that two of the emendments, which seemed likely to command general acceptance, were of sufficient importance to be published as soon as possible, in the Proceedings of the present Congress.

3. The substance of these two emendments is as follows:

(a) In the present Code (Art. C 3, note) it is recommended that the term *variety* be confined to plants occuring in the wild, and that the term *cultivar* be used for "lines.... clones, etc., which originated or are maintained in cultivation". Since the Code was published it has been pointed out that the term *variety* is incorporated in the laws of certain countries in the sense of *cultivar* as defined above, and that it would not be possible for some time to alter the wording of these laws to conform with the Code. The Committee accordingly recommend that the Note to Art. C 3 should be altered to allow the use of the term *variety* (or its equivalent in other languages) to be retained for commercial or other non-scientific purposes until such time as the term *cultivar* may be incorporated into the laws concerned.

(b) In the Code (Art. C 20) it is laid down that the same cultivar-name may not be used for more than one cultivar within the same genus. The Committee feels, however, that, in some groups of cultivated plants, the genus is too wide a unit within which to prohibit duplication of names, and they accordingly recommend that a clause should be inserted in Art. C 20 allowing for exceptions to this rule within genera containing two or more widely different groups of plants (e.g. *Prunus*, which includes cherries and peaches; *Brassica*, which includes turnips and cauliflowers; *Malus*, which includes apples and ornamental crabs).

C. The Establishment of International Registration Authorities.

1. The Code (Art. C 5) recommends the setting up of International Registration Authorities for appropriate groups of cultivated plants. The duties of these Authorities would include (1) compiling and publishing lists of cultivar-names within the group concerned; (2) registering the names of new cultivars; and (3) making known the provisions of the Code among raisers, introducers and others concerned,

2. The Committee recommends that invitations should be sent to the following organizations by the Fourteenth International Horticultural Congress to act as International Registration Authorities for the groups indicated:

Koninklijke Algemene Vereniging voor Bloembollencultuur (Royal General Dutch Bulb Growers Society)	*Tulipa*; Hardy bulbous and tuberous-rooted plants (excluding *Dahlia*, *Gladiolus*, *Lilium* and *Narcissus*).
The American Horticultural Council (acting on behalf of the following specialist societies)	
The American Iris Society	*Iris* (excluding bulbous Irises).
The American Holly Society	*Ilex*
The American Rose Society	*Rosa*
The American Hemerocallis Society	*Hemerocallis*

The Royal Horticultural Society of London	*Narcissus; Rhododendron* (including *Azalea*); *Delphinium* (perennials only).
The National Chrysanthemum Society (U.K.)	*Chrysanthemum* (perennials only).

3. In addition, the Committee has agreed on a list of organizations which they recommend should be approached to ascertain whether the organizations would be prepared to accept an invitation from the next International Horticultural Congress to act as International Registration Authorities.

4. The Committee agreed to give wide publicity through the press, and by other suitable means, to a request for information on any groups of cultivated plants for which lists of cultivars are available, are in process of preparation, or are under contemplation, with a view to setting up International Registration Authorities in the future for the groups concerned. The Director of the Arnold Arboretum, Cambridge, Mass. U.S.A., has agreed to receive and co-ordinate the information sent in as a result of this request.

5. The Committee discussed in detail the functions and method of operation of International Registration Authorities, and agreed on a Scheme, embodying, with some small modifications and additions, that published in the Report of the Registration Sub Committee set up at the Thirteenth International Horticultural Congress. The amended scheme will be published in the Report of the present Congress.

D. Trade-marks and Patents.

The question of the relationship between (1) the registration of cultivar-names by an International Registration Authority, (2) the legal registration of words as trade-marks applicable to certain cultivars, and (3) the taking out of patents restricting the right of distribution of cultivars was discussed by the Committee. It was clear that this question is a difficult and complicated one, and the Committee asked Dr B. K. Boom to study the subject and to report to the Committee at the next International Horticultural Congress. In the meantime, Dr Boom has prepared a short memorandum on the present position which will be circulated to the Committee.

E. Membership of the Committee.

The Committee reviewed its present membership. After consultation with the Executive Committee of the Congress it is suggested that invitations to appoint members should be sent to all those countries represented at the present Congress who have not already done so.

Nomenclatural note on Dammara Lmk and Agathis Salisb.

by

R. C. Bakhuizen van den Brink Jr (Leiden)

So far as I know no objection has ever been raised against the validity of Dammara Lmk (1786), at least from the side of taxonomists dealing with Conifers in general, or with Agathis (Dammara) in particular. However, it is noteworthy that Lamarck's genus was neither mentioned by Lambert in the first edition of his monograph on the genus Pinus (1803), nor by Salisbury (Trans-Linn. Soc. 8, 1807, 312), and that it is omitted also in Pfeiffer's "Nomenclator Botanicus" (1874). A closer study of Lamarck's article on Dammara, Encycl. Meth. 2, 1786, 259) reveals that Dammara was not validly published. There is no generic description, and the names "Dammara selanica" and "Dammara alba" are merely names plainly quoted from Rumphius's "Herbarium Amboinense". As appears from the text, Lamarck had neither the intention to validate them as specific epithets, nor to create a new genus based on Rumphius's heterogeneous collection of reciniferous trees. Accordingly Dammara was not mentioned in the index to the generic names contained in his "Dictionnaire Encyclopédique".

Lamarck's text runs as follows:

"Dammar (*Dammara*); nom que Rumphe donne à différens arbres très résineux, dont quelques-uns peuvent être rapportés aux Balsamiers et aux Iciquiers; mais les deux qui suivent paroissent avoir des charactères

si particuliers, surtout le second, qu'ils semblent s'éloigner de tout ce que l'on connaît jusqu'à présent.

Dammar sélan, *Dammara selanica.* Rumph. Amb. 2. p. 168. Tab. 56. Rumph, sous ce nom, traite d'un arbre fort résineux, ...

Dammar blanc, *Dammara alba.* Rumph. Amb. 2. p. 174, t. 57. *Dammar puti, Dammar battu.* Sous cet article, Rumph fait mention d'un autre arbre aussi très-résineux, mais qui paraît fort différent de selui qui précède par le caractère de ses fruits ....."

Foxworthy (Philip. J. Sc. 44, 1909, 442) made the combination Agathis alba (Lmk) Foxw., but it is clear from the preceding that Lamarck did not validly publish the basionym.

Moreover, Foxworthy's binomial was antedated by that of Jeffrey (Annals of Bot. 20, 1906, 387), who validly published the name Agathis alba with an indirect reference to Dammara (alba).

As Lamarck's "generic" name is invalid, it can not be taken into consideration, and the first who validly used the name Dammara was not he but Gaertner (Fruct. 2, 1791, 100, t. 103, f. 1). This Dammara, however, is a burseraceous plant and not a conifer. The first valid publication of the coniferous genus Dammara was apparently that of Link (Enum. Pl. Hort. Berol. 2, 1822, 411). This, however, is a superfluous name for Agathis Salisb. (1807). The conservation of Agathis Salisb. against Dammara Lmk is therefore unnecessary, and has to be deleted. So far as I know Dammara alba was first validly published by Blume (Rumphia 3, 1847, 211). It was, however, an illegitimate name.

There is another question which has to be clarified, viz. what the correct name is for the plant now generally known as "Agathis alba (Lmk) Foxw." and typified by Rumphius, Herb. Amb. 2, 1741, 174, t. 57. Rumphius's plant was first validated as Pinus dammara by Lambert, Genus Pinus ed. 1 (1803) t. 38, who was followed by Willdenow, Sp. Pl. 4, 1 (1805) 503. Lambert's text, opposite t. 38, runs as follows:

"32. Pinus Dammara.

Amboina Pitch Pine.

Pinus Dammara, foliis oppositis ellipticolanceolatis striatis.

Dammara alba. Rumph. Amboin. v. 2. 174. t. 57 Arbor Javanensis Visci foliis latioribus conjugatis, Dammara alba dicta. D. Sherard. — Raii. Hist. v. 3.

Habitat in Amboinae excelsis montibus solo argillaceo .....

Descriptio.

Arbor, ...

For the specimens represented in the plate I am obliged to Sir Joseph Banks, in whose herbarium the leaves are preserved, and who has lately received fragments of the cone from Mr. Christopher Smith, Botanist to the East India Company, at Amboina. Dr Smith has also discovered a specimen of the leaves in the Sherardian herbarium at Oxford, among the plants collected by Dampier. From these materials, and the account given by Rumphius, all our knowledge of this tree is derived ....."

L. C. Richard (Conif., 1826, 83, t. 19) put Pinus dammara Lambert under Agathis Salisb. The correct name in that genus therefore is Agathis dammara (Lambert) L. C. Rich. Meyer Drees (Bull. Jard. Bot. Btzg. ser. III, 16^4, 1940, 464) considered Agathis loranthifolia Salisb. (Trans. Linn. Soc. 8, 1807, 312, c. icon.) specifically different. But as appears from the original text Salisbury's plant has the same type as that of Lambert, so that Salisbury's epithet loranthifolia is superfluous!

Salisbury wrote:

"....Pinus Dammara. *Lamb. Pin.* p. 61. t. 38. Arbor javanensis Visci foliis & c. *Raij Hist.* v. 3. Dendr. p. 130. auctoritate Herbarii Sherardiani. Dammara alba. *Rumph.* Amb. v. 2. p. 174. t. 57. sponte nascentem in Ins. *Amboina* nuperrime legit C. Smith.

Specimina completa in Sp vini servata communicavit Banks, qui omnium primus veram Coniferam *Pino* affinem esse monuit."

The synonymy is as follows:

Agathis Salisb. in Trans. Linn. Soc. 8 (1807) 311, t. 15, nom. cons. (Type: *A. loranthifolia* Salisb.) Dammara (Rumph., Herb. Amb. 2, 1741, 174, t. 57; Lmk, Enc. Méth. 2, 1786, 259, nom. inval.) Link, Enum. 2 (1822) 411, nom. illeg., non *Dammara* Gaertn., Fruct. 2 (1791) 100, t. 108, f. 1 (Burserac.).

Agathis dammara (Lambert) L. C. Rich., Conif. (1826) 83, t. 19 — *Pinus dammara* Lambert, Genus Pinus ed. 1 (1803) t. 38; Willd., Sp. Pl. 4, 1 (1805) 503 — *Agathis loranthifolia* Salisb. in Trans. Linn. Soc. 8 (1807) 311, t. 15, nom. illeg. — *Dammara alba* Rumph. ex Bl. in Rumphia 3 (1847) 211 nom. illeg. — *Agathis alba* Jeffrey in Ann. Bot. 20 (1906) 387; Foxw. in Philip. J. Sc. 44, (1909) 442; ibid. 5 (1910) A 173, (non vidi); ibid. 6 (1911) 167.

Notices of Books

The editors have the intention to publish regularly a separate column of "Notices of Books". Mr K. U. Kramer of the Utrecht Botanical Museum has declared himself ready to edit this column. It goes without saying that these lists are not meant to be complete in any respect. Still it is thought that references in Taxon to new monographs, revisions or floras as they have come to the attention of the editors may be useful to many botanists and especially to those who have not the privilege to work in close connection with large botanical libraries. Mr Kramer will therefore be grateful for any information of this kind suitable for inclusion in this column. Review copies too will be welcome although the reviews will in most cases be limited to a few lines.

Flora do Paraná

J. Angely: Flora do Paraná: *Gramíneas Paranaenses.* Curitiba, Paraná, Brasil, 1954.

Flora of Texas

D. S. Correll: Flora of Texas, vol. 1, pt. I: *Pteridophyta.* Dallas, Texas, 1955; pp. 1—122.

Flora delle Alpi

L. Fenaroli: Flora delle Alpi; vegetazione e flora delle Alpi e degli altri monti d'Italia. Aldo Martello, Milano, Italy, 1955. XIV + 369 pp., with 44 coloured plates, 58 photographs, and 262 drawings; in Italian.

Nicotiana

Th. H. Goodspeed: The genus Nicotiana. Origins, relationships and evolution of its species in the light of their distribution, morphology and cytogenetics. Chronica Botanica vol. 16, no. 1/6, Waltham, Mass., 1954. XXI + 596 pp., 118 figures.

Japanese Bryophytes

Y. Horikawa: Distributional studies of Bryophytes in Japan and the adjacent regions. Hiroshima, Japan, 1955. 152 pp.

Capparidaceae

H. H. Iltis: *Capparidaceae* of Nevada. Contrib. toward a flora of Nevada no. 35. Beltsville, Md., 1955. 24 pp.

Flore de l'Afrique du Nord

R. Maire: Flore de l'Afrique du Nord, vol. III: *Gramineae* (in part.). Paul Lechevalier, Paris, 1955. 399 pp., 167 figures.

Flora of Bulgaria

N. Stoyanov & B. Stefanov: Flora of Bulgaria (Flora na Bulgariya), 3rd revised edition. Sofia, Universitetska Biblioteka no. 360, 1948, IV + 1361 pp.; in Bulgarian.

Dutch Diatoms

A. van der Werff & H. Huls: Diatomeeënflora van Nederland. 10 vols., each with 50 species. To appear shortly. To be ordered from: Uitgeverij "De Regenboog", Rapenburg 87, Amsterdam, Netherlands; in Dutch.

Ferns of Malaya

R. E. Holttum: A revised Flora of Malaya — vol. II. Ferns of Malaya. Singapore, 1954. 643 pp., 362 figures, 3 plates.

This richly illustrated handbook with its numerous drawings and extensive keys and descriptions will be welcomed by everybody interested in ferns. It is the first comprehensive work on ferns of the Indo-Malayan region to appear after Backer & Posthumus's "Varenflora voor Java" (1939), which, unfortunately, is of little use to anybody not familiar with the Dutch language. The arrangement is according to the author's system (1949). An interesting innovation used in classification and differentiation of genera is the study of the structural details of the rachises and the attachment of the pinnae; moreover, there is an appendix with 3 plates giving the chromosome number of one hundred species (by Prof. I. Manton, Leeds). The Fern Allies are excluded.

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Monographs, revisions, etc., published in periodicals

J. J. Idrobo: *Xiridáceas* de Colombia. Caldasia VI, nr. 29, pp. 185—256 (1954).

R. Martinez Crovetto: Synopsis des *Cucurbitacées* de l'Uruguay. Notul. Syst. 15, 1, pp. 47—55 (1954).

O. Schwarz: Systematische Monographie der Gattung *Cyclamen* L. Fedde Rep. 58, H. 1/3, pp. 234—283 (1955).

J. Sinclair: A revision of the Malayan *Annonaceae.* Gardens' Bull. 14, 2, pp. 149—516 (1955).

R. M. Tryon Jr.: *Selaginella rupestris* and its allies. Ann. Mo. Bot. G. 42, 1, pp. 1—99 (1955).

R. L. Wilbur: A revision of the North American genus *Sabatia* (Gentianaceae). Rhodora 57, nr. 673, pp. 1—33; nr. 674, pp. 43—71; nr. 675, pp. 78—104 (1955).

Ohwi's Flora of Japan in English

No comprehensive flora of Japan has been prepared in any western language since Franchet and Savatier published their "Enumeratio plantarum in Japonia sponte crescentium...." in 1875—79. Westerners therefore will doubtless welcome an English translation, now in preparation, of Dr Jisaburo Ohwi's Flora of Japan published in 1953 in Tokyo in Japanese.

The initial stages for translating Prof. Ohwi's Flora developed in Japan through the ingenuity and enthusiasm of Leopold A. Charette to obtain determinations for his Japanese plant collections from Prof. Ohwi during his days as an U.S. Air Force Sergeant in Japan from 1952—1954.

The English language edition will include 25 full page illustrations instead of 10 as found in the Japanese edition, a treatment of the Japanese Pteridophytes also not included in the Japanese edition, a chronology of plant collectors in Japan and a map of the country.

The National Science Foundation has granted money for the translation, and a second grant will be necessary for publication. The project is being sponsored by the Missouri Botanical Garden and an editing committee in the U.S.

F. G. Meyer,
Missouri Botanical Garden
E. H. Walker,
Smithsonian Institution

* * *

THE NAME OF THE WATER-MELON

The generic name *Citrullus* has been discussed in "Taxon" several times before (Fosberg in Taxon 2(4): 99—101 and Hara in Taxon 2(6): 134—135) and finally the genus *Citrullus* Schrad. was proposed for conservation against *Citrullus* Forsk., *Citrullus* Neck. and *Colocynthis* (Tournef. ex) Ludw. (see Taxon 3: 122, 156, 233).

It has been pointed out (Hara, l.c.) that as a consequence of the conservation of *Citrullus* Schrad. the valid name of the common water-melon should be a new combination based upon *Cucurbita anguria* Duch. (1786), the oldest available name after *Cucurbita citrullus* L. (1753) and *Citrullus battich* Forsk. (1775) which two names cannot be taken up.

We now have a Committee on Stabilisation and if it is eventually decided to reject certain specific names in favour of younger well-established names, there is a very strong case for the "stabilisation" of the name *Citrullus vulgaris* Schrad. by eliminating *Cucurbita anguria* Duch.

The arguments in favour are:

(1) the name *Citrullus vulgaris* Schrad. for the well-known and widely cultivated water-melon is so deeply entrenched, not only in the taxonomic botanical literature but also in horticultural and agricultural publications, in works on plant breeding, in lexica, etc., and even in some recent chemical and biochemical papers dealing with bitter substances occurring in the fruits of wild forms of this plant, that a change of name would cause inconvenience in a much wider sphere of botanical interests than pure systematic botany and would undoubtedly rouse complaints in many non-taxonomic circles;

(2) the specific epithet "*anguria*", is also in use as a generic name (*Anguria* Mill., *Anguria* L.) in the Cucurbitaceae and in addition as a specific epithet in the genus *Cucumis* (*Cucumis anguria* L. — also an edible and sometimes cultivated plant!), so that the use of the epithet "*anguria*" might cause confusion with the genera *Anguria* L. and *Anguria* Mill. and other species like *Cucumis anguria* L., especially again in non-taxonomic circles (who have always resented the "juggling" with generic names also used as specific epithets).

Note: It is realised that a "proposal" of this kind is premature, but on the other hand one so often requires an example to illustrate a certain rule or recommendation in our Code that the case of *Citrullus vulgaris* Schrad. is discussed here as a potential good example of a name that could be proposed for "stabilisation", regardless of the question how this stabilisation is eventually achieved.

A. D. J. Meeuse (Pretoria)

NOMEN CONSERVANDUM PROP.

(10) Proposal for conservation of the generic name **Astrochlaena** Hallier f. (*Convolvulaceae*).

Astrochlaena Hallier f. in Engl. Bot. Jahrb. 18 : 120 (1893), *nom. cons. prop.* (segregate of *Ipomoea* L.).

Adopted by: Dammer in Engl., Pflzwelt O. Afr. C: 330—331 (1895); Peter in Engl. & Prantl, Natürl. Pflzfam. 4(3a) (Nachtr.): 377 (1895); Rendle in J. Bot. (London) 39 : 59—60 (1901); Dalla Torre & Harms, Gen. Siphonog. 421 (1900—1907); Baker & Wright in This.-Dyer, Fl. Cap. 4 (2) : 68 (1904); Baker & Rendle in This.-Dyer, Fl. Trop. Afr. 4 (2) : 118 (1905); Medley-

Wood, Handb. Fl. Natal 89—90 (1907); Pilger in Engl. Bot. Jahrb. 45 : 222 (1910); Lemée, Dict. 1 : 435 (1929); Brown & Massey, Fl. Sudan 321 (1929); Chiov., Fl. Somal. 1 : 236 (1929), 2 : 326 (1932); and in Reale Acc. d'Italia 4 (Missione biol. n. paese d. Borana). 172 (1939); Hutch. & Dalz. Fl. W. Trop. Afr. 2 : 213 (1931); Brenan & Greenway, Tanganyika Check-list 2 : 169 (1949); Phillips, Gen. S. Afr. Flow. Pl. [Ed. 1 : 512 (1926)] Ed. 2 : 623 (1951); Brenan in Mem. New York Bot. Garden 9 (1) : 8 (1954).

Number of Species: about 16 (African).

Type species: not designated by Hallier or subsequent authors, but proposer (in a Ms. on the South-African Convolvulaceae) selected *Ipomoea lachnosperma* Choisy = *A. lachnosperma* (Choisy) Hallier f., the oldest described species transferred to this genus by Hallier, as the type species and this selection is now proposed formally.

Synonyms: none.

Asterochlaena Garcke in Bot. Zeitg. 8 : 666 (1850), *nomen rejiciendum prop.*

Proposed with one species, *A. cuspidata* Garcke, l.c. but subsequently not adopted; Garcke himself [in Engl. Bot. Jahrb. 21 : 392 (1896)] later pointed out that it had to be reduced to a synonym of *Pavonia* Cav.

Ulbrich, in his monograph of the African species of *Pavonia* (Engl. Bot. Jahrb. 57 : 60, 64 (1920)) reduces *Asterochlaena* Garcke to a section *Asterochlaena* of his subgenus "*Eupavonia*" (the "typical" subgenus, now to be referred to as subgenus *Pavonia*).

Discussion: 1. The names *Asterochlaena* Garcke (1850) and *Astrochlaena* Hallier f. (1893) are clearly only orthographical variants and not two different names, so that the younger name is invalidated by the older one and needs conservation.

2. The name *Asterochlaena* Garcke for a Malvaceous plant was early reduced to a synonym of *Pavonia* Cav. *by its own author.* A revival of this name is most unlikely because the latest monographer of the genus (Ulbrich) places *Asterochlaena* Garcke as a section in the "typical" subgenus *Pavonia (Eupavonia).*

3. The name *Astrochlaena* Hallier f. *for which no synonym is available,* has been universally adopted and frequently used in works on the African flora for a group of 16 species some of which are wide-spread and well-known.

4. Conservation of *Astrochlaena* Hallier f. and rejection of *Asterochlaena* Garcke would consolidate the position that has existed for more than 60 years and would avoid any change of names; on the other hand the chance of future name-changes in connection with a re-instatement of a Malvaceous genus equivalent to *Asterochlaena* Garcke after the latter has been rejected is so remote as to be negligible. If *Astrochlaena* Hallier f. is not conserved the genus and all its species would have to be renamed.

Proposed by: A. D. J. Meeuse (National Herbarium, Pretoria).

NATIONAL SCIENCE FOUNDATION

The Division of Biological and Medical Sciences of the National Science Foundation announces that the next closing date for receipt of research proposals in the life sciences will be February 1, 1956. Proposals received prior to that date will be reviewed during the Spring meetings of the advisory panels and final disposition will be made approximately ten weeks from the dates of those meetings. Proposals received after February 1, 1956 cannot be reviewed until Fall, 1956.

UROSTACHYS

The attention of the members of the Committee for Pteridophyta is drawn to an ample discussion of the nomenclature of the genus *Urostachys* Herter, *nom. cons. prop.* by H. P. Fuchs in Verh. Naturf. Ges. Basel 66 (1) : 33-48. 1955. The author comes to the conclusion that when the genus *Lycopodium* L. is to be split in two, it is necessary to adopt the generic name *Mirmau* Adanson 1763 for the genus including *Lycopodium selago* L.

PERSONALIA

Donald G. Huttleston, formerly curator of the herbarium of the Brooklyn Botanic Garden, Brooklyn, N.Y. has accepted a post as taxonomist at Longwood Gardens, Kennett Square, Pennsylvania, U.S.A.

INDEX NOMINUM GENERICORUM

The first set of 1000 cards of the Index Nominum Genericorum was published on 1 October 1955. Full particulars will be given in the next number of Taxon.

REGNUM VEGETABILE

Regnum Vegetabile vol. 6 will contain the World Report on Palaeobotany (1950-1954) presented by the International Organization of Palaeobotany (The Palaeobotanical Committee of the I.A.P.T.). The Report will be published in the beginning of 1956.

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